

ABSTRACT

A plant for producing Fischer-Tropsch liquids and electrical power with greatly reduced emissions of carbon dioxide to the atmosphere is made up of a syngas generator unit, an air separation unit, a Fischer-Tropsch unit, a CO₂ removal unit, and a combined cycle electricity generation unit. Each of Fischer-Tropsch liquids, carbon dioxide, and electrical power can be recoverable under proper economic conditions. Electrical power is recoverable by the use of a gas turbine fueled by predominantly hydrogen and a steam turbine powered by steam generated by cooling exhaust gases from the gas turbine. Sequestration of CO₂ and fueling the gas turbine with hydrogen reduces the amount of greenhouse gases emitted to the atmosphere.